

Application No. 10/025,249
Response to Office Action

Customer No. 01933

R E M A R K S

Reconsideration of this application, as amended, is respectfully requested.

THE TITLE

The title has been amended to more clearly indicate the nature of the invention to which the claims are directed, as required by the Examiner.

THE SPECIFICATION

The specification has been amended to correct some informalities of which the undersigned has become aware, including the informalities on pages 5 and 11 pointed out by the Examiner.

The Examiner's objection to the disclosure at page 12, lines 10 and 11, however, is respectfully traversed. In this connection, it is respectfully pointed out that the specification clearly explains at page 11, line 25 to page 12, line 5 that:

The sheet-number storage section 334 stores the number of sheets printed by using the drum 16. The preset sheet-number storage section 335 stores a preset number of sheets, which corresponds to the lifetime of the drum 16. The counter section 336 stores the number of sheets printed until the expiration of the lifetime of the drum 16 is detected.
(emphasis added)

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In addition, it is respectfully pointed out that the specification clearly states at page 12, lines 9-11 that: "when the number of sheets printed by using the drum exceeds the preset number of sheets, the CPU 31 determines that the lifetime of the drum 16 has just expired." It is respectfully submitted, therefore, that the specification does, in fact, clearly explain "what makes the drum expendable."

No new matter has been added, and it is respectfully requested that the amendments to the specification be approved and entered, and that the objection to the specification be withdrawn.

THE CLAIMS

Claims 1 and 8 have been amended to clarify the feature of the present invention whereby it is detected that the lifetime of the expendable is expiring based on only one parameter.

For example, as described in the specification with respect to the first embodiment, it may be determined that the lifetime of the expendable (toner) is expiring based on a signal from the toner sensor that the toner is running out. In addition, as described in the specification with respect to the second embodiment, it may be determined that the lifetime of the expendable (the drum) is expiring based the number of sheets printed.

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In addition, claims 1-4, 6, 8-11 and 13 have been amended to make some minor grammatical improvements and to correct some minor antecedent basis problems so as to put them in better form for issuance in a U.S. patent. These amendments are not related to patentability and do not narrow the scope of the claims either literally or under the doctrine of equivalents.

No new matter has been added, and it is respectfully requested that the amendments to claims 1-4, 6, 8-11 and 13 approved and entered.

THE PRIOR ART REJECTION

Claims 1, 3-6, 8, 10-13 were rejected under 35 USC 102 as being anticipated by USP 6,512,896 ("Asanuma et al"); claims 2 and 9 were rejected under 35 USC 103 as being obvious in view of the combination of Asanuma et al and US 2002/0172520 ("Suyehira"); and claims 7 and 14 were rejected under 35 USC 103 as being obvious in view of the combination of Asanuma et al and USP 5,802,420 ("Garr et al"). These rejections, however, are respectfully traversed with respect to the claims as amended hereinabove.

According to the present invention as recited in amended independent claims 1 and 8, it is detected that a lifetime of an expendable used to form images is expiring, based on only one parameter.

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By contrast, it is respectfully pointed out that according to Asanuma et al a low toner level is detected based on a plurality of conditions (3), (4) and (5).

And it is respectfully submitted that Asanuma et al does not disclose, teach or suggest a counting section which counts a used amount of the expendable, from a time when the detecting section detects that the lifetime of the expendable is expiring; and a control section which disregards a subsequent detection by the detecting section that the lifetime of the expendable is expiring, until the counted used amount of the expendable reaches a prescribed value, as recited in amended independent claim 1 and corresponding amended independent method claim 8.

By contrast, according to Asanuma et al, when it is determined that toner will need replacing soon, a message is displayed to inform the user. Then, image recording is allowed to proceed as usual until it is detected that the toner is completely gone or until it is detected that the lifetime of the photosensitive drum has expired. (See column 12, lines 15-32 of Asanuma et al.)

That is, according to the teachings of Asanuma et al, once a low toner level is detected, printing simply continues until it is no longer possible to print, because of a lack of toner or expiration of the lifetime of the photosensitive drum.

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By contrast, according to the claimed present invention, when it is detected that the lifetime of the expendable is expiring, a used amount of the expendable is counted from a time when the detecting section detects that the lifetime of the expendable is expiring, and a subsequent detection that the lifetime of the expendable is expiring is disregarded until the counted used amount of the expendable reaches a prescribed value.

It is respectfully submitted that Asanuma et al merely discloses detecting a low toner level, for example, and then continuing to print until printing is no longer possible. And it is respectfully submitted that Asanuma et al does not disclose, teach or suggest disregarding a subsequent detection that the lifetime of the expendable is expiring, based on a counted value of the expendable, as according to the claimed present invention.

Suyehira, moreover, has merely been cited for the disclosure of automatically ordering an expendable.

With the structure of claim 2 depending from claim 1 (and claim 9 depending from claim 8), however, an order for the expendable is automatically placed when it is detected that the lifetime of expendable is expiring, on the basis of the one parameter. Since a subsequent detection is ignored until the counted used amount of the expendable reaches a prescribed value,

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a second ordering of the expendable is prohibited, until the counted amount of the expendable reaches the prescribed value. Thus, even when the detection of lifetime expiration is undesirably canceled due to turning on/off the power switch of the image forming apparatus or opening/closing the cover, automatic double-ordering is advantageously prevented.

It is respectfully submitted that Suyehira, even when combined with Asanuma et al, does not disclose, teach or suggest this feature of the present invention as recited in claims 2 and 9.

Garr et al, moreover, has merely been cited for the disclosure of tracking an amount of toner in a cartridge.

In view of the foregoing, it is respectfully submitted that the present invention as recited in amended independent claims 1 and 8, and claims 2-7 and 9-14 respectively depending therefrom, clearly patentably distinguishes over Asanuma et al, Suyehira and Garr et al, in any combination under 35 USC 103.

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Entry of this Amendment, allowance of the claims and the passing of this application to issue are respectfully solicited.

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If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned at the telephone number given below for prompt action.

Respectfully submitted,



Douglas Holtz
Reg. No. 33,902

Frishauf, Holtz, Goodman & Chick, P.C.
220 Fifth Avenue - 16th Floor
New York, NY 10001-7708
Tel. No. (212) 319-4900
DH:al/iv